

Magnetoresistance Element

Description

The DM-106B is a highly sensitive magnetoresistance element composed of an evaporated ferromagnetic alloy on a silicon substrate. (The element can be used for automatic shut off of tape recorders, as a contactless switch, and as a general detector of rotational motion.)

Features

- Low power consumption 11 mW (Typ.)
 $V_{CC}=5\text{ V}$
- Low magnetic field and high sensitivity
 80 mVp-p (Typ.)
 $V_{CC}=5\text{ V}$
 $H=8000\text{ A/m}$
- High reliability
 Ensured through silicon
 Nitride protective filming

Structure

Thin-film nickel-cobalt magnetic alloy on silicon substrate

Absolute Maximum Ratings ($T_a=25\text{ }^{\circ}\text{C}$)

• Supply voltage	V_{CC}	10	V
• Operating temperature	T_{opr}	-40 to +100	$^{\circ}\text{C}$
• Storage temperature	T_{stg}	-50 to +125	$^{\circ}\text{C}$

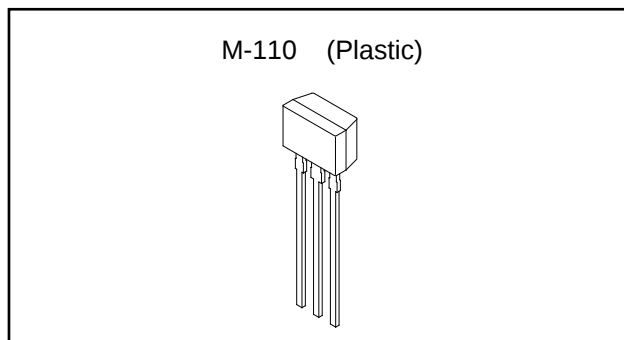
Recommended Operating Supply voltage 5 V

Electrical Characteristics

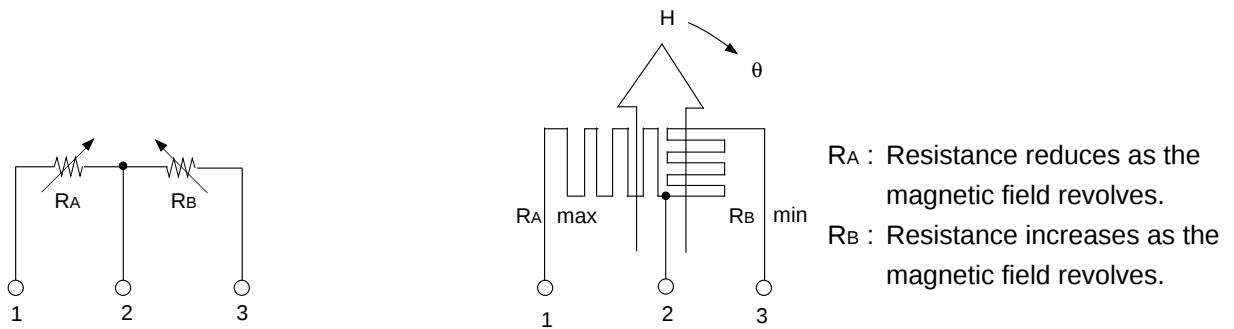
($T_a=25\text{ }^{\circ}\text{C}$)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Total resistance	R_T	$V_{CC}=5\text{ V}$, $H=8000\text{ A/m}$ Revoiving magnetic field	1.4	2.3	3.7	$k\Omega$
Midpoint potential	V_c	$V_{CC}=5\text{ V}$, $H=8000\text{ A/m}$ Revoiving magnetic field	2.45	2.50	2.55	V
Output voltage	V_o	$V_{CC}=5\text{ V}$, $H=8000\text{ A/m}$ Revoiving magnetic field	60	80		mVp-p

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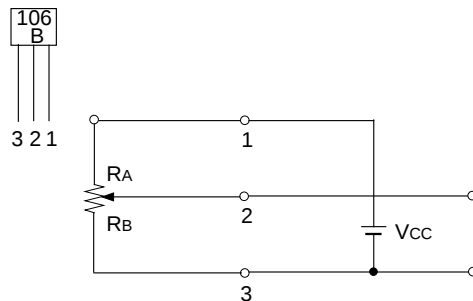


Equivalent Circuit

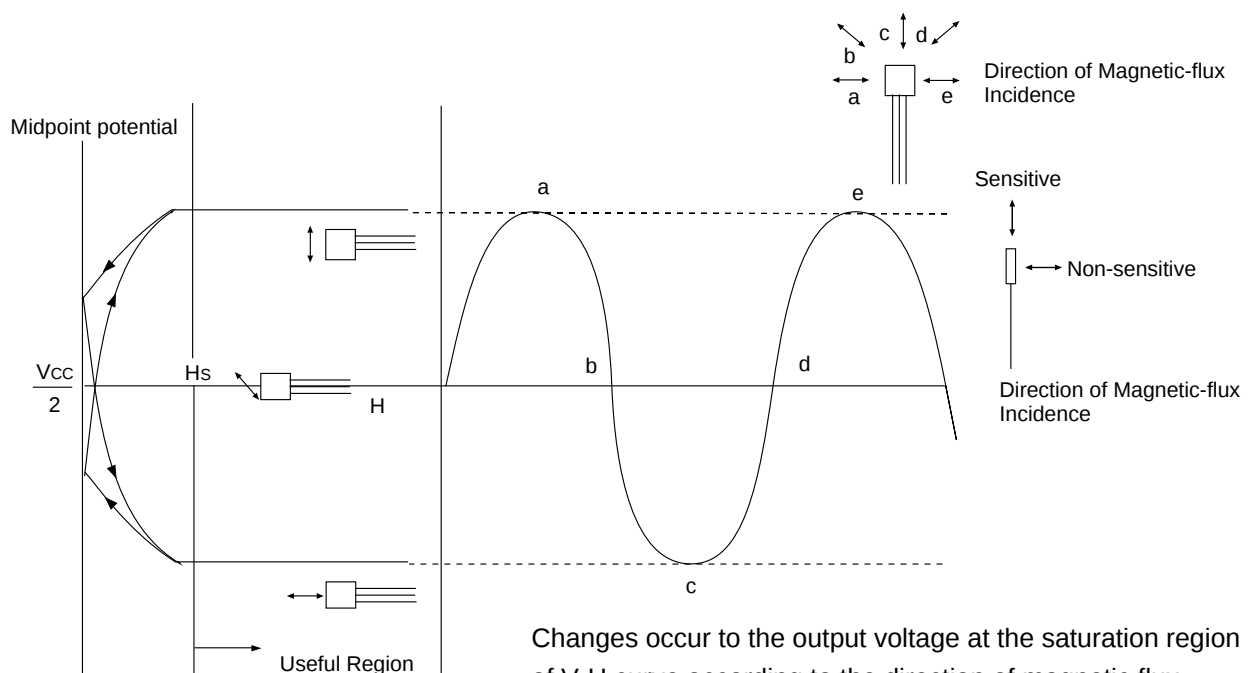


Introduction

1. Power supplying pin output pin

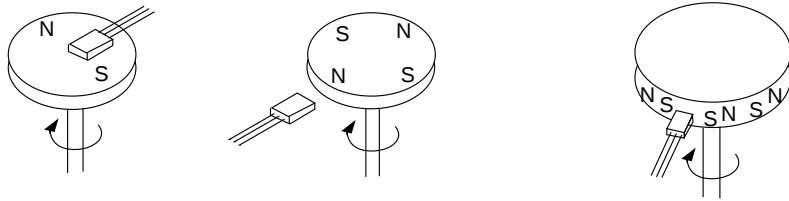


2. Sensitive direction vs. Midpoint potential

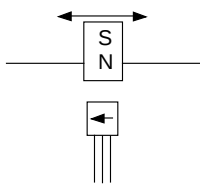


Applications

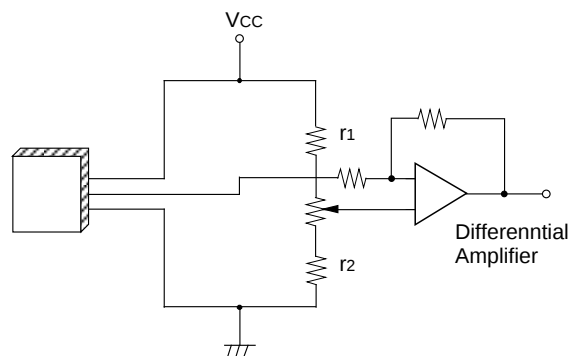
1. Detection of revolution



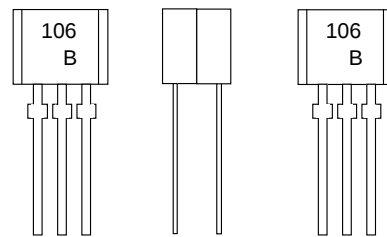
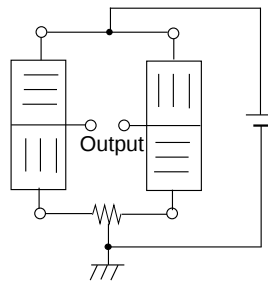
2. Position detecting



Circuits



3. Bridge Circuits

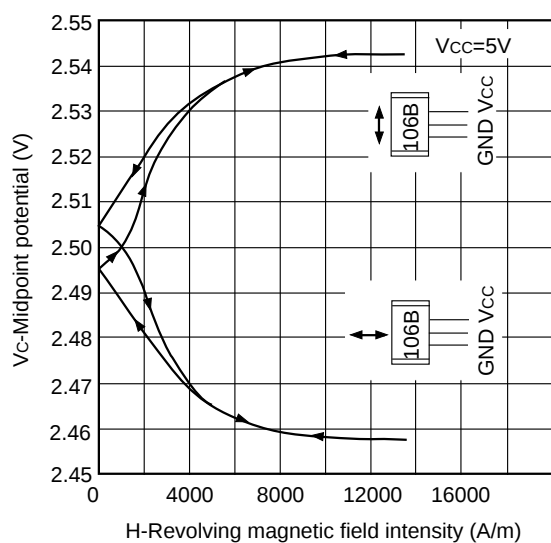


By coupling 2 pieces back to back and sticking them together in a bridge, the output voltage is doubled.

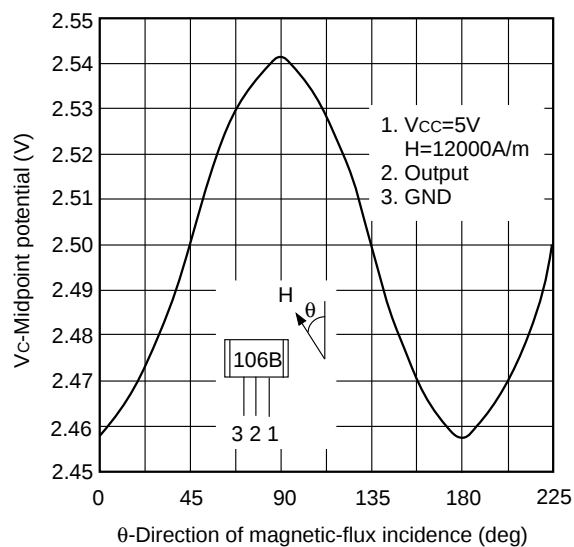
Notes on Application

- Execute the solder to the lead line within 10 seconds at a temperature below 260 °
- To Fix the ELEMENTS : When glue is used, DO NOT apply mechanical stress to the elements.

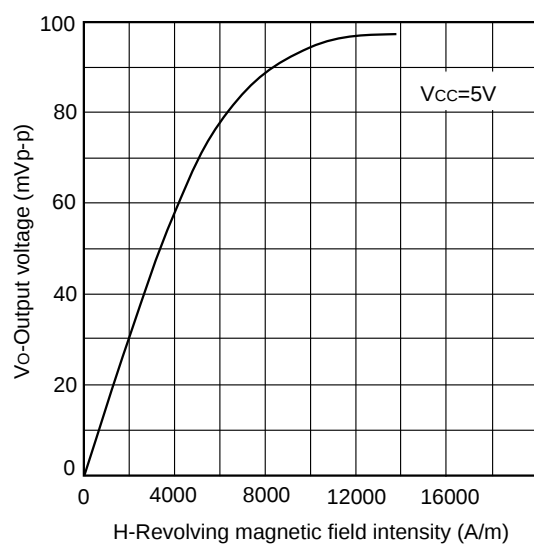
Midpoint potential vs. Magnetic field intensity



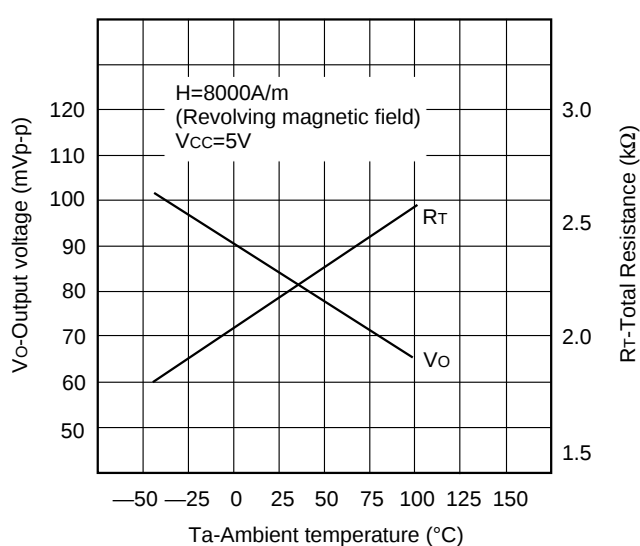
Midpoint potential vs. Direction of magnetic-flux incidence



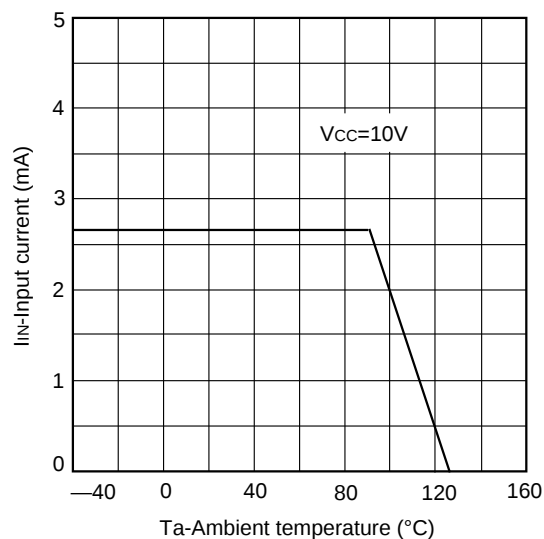
Output voltage vs. Magnetic field intensity



Total resistance, output voltage vs. Temperature

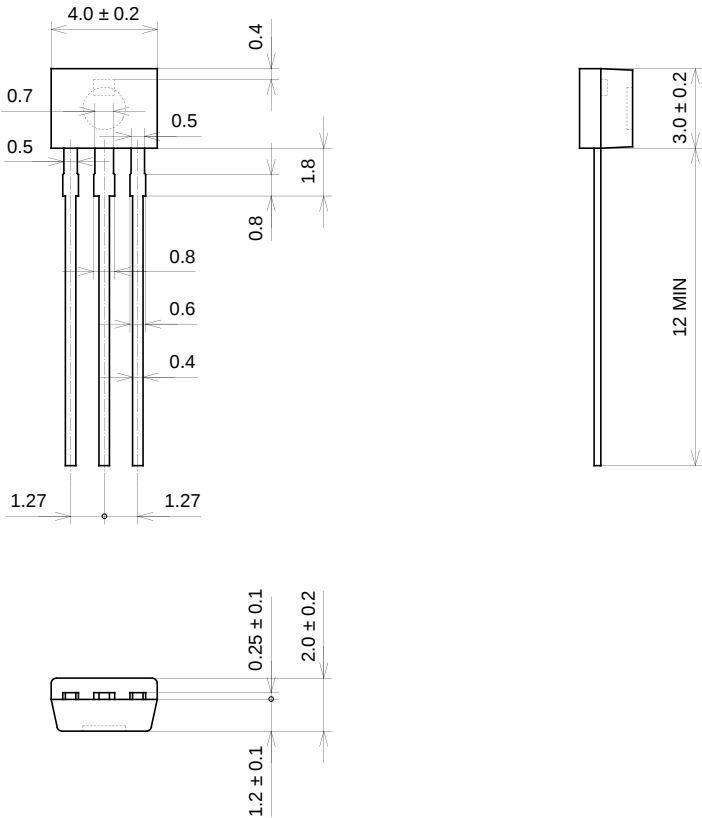


Derating Curve



Package Outline Unit : mm

M-110



SONY CODE	M-110
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	0.09g
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